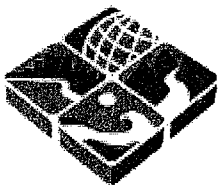

AMERICAN WATER RESOURCES ASSOCIATION

Community, Conversation, Connections

Statement of

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to the

Committee on Transportation and Infrastructure
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Water Resources and Climate Change

Chairman Oberstar, members of the Committee. It is a distinct privilege to participate in this important and most timely hearing and I want to thank the Committee for the opportunity.

I am Gerald E. Galloway, President of the American Water Resources Association and a Glenn L. Martin Institute Professor of Engineering at the University of Maryland where I teach and do research in water resources and public policy.

The American Water Resources Association is a non-profit professional association dedicated to the advancement of men and women in water resources management, research, and education. AWRA's membership is multidisciplinary; its diversity is its hallmark. It is the professional home of a wide variety of water resources experts including engineers, economists, educators, foresters, biologists, ecologists, geographers, managers, regulators, hydrologists and attorneys. Its mission is to advance multidisciplinary water resources education, management and research. AWRA is also a member of the World Water Council and is one of three US government and NGO organizations on the Board of Governors of this international Council.

My message today is straightforward. Our nation and the world face significant water resource challenges and we are not now properly addressing water issues either at home or as they affect the rest of the world. Climate change will only exacerbate the challenges and place greater fiscal and management burdens on our society. Unless steps are taken to deal with and adapt to these challenges, the long term social and economic health of the nation and the world is at significant risk.

Water resources are a critical component of our national existence and our national security. The availability of water, its quality and its allocation and use have immense impacts on the health and welfare of our citizens and our economy. Failure to provide good stewardship of these resources is a roadmap to long term disaster and places a significant burden on the generations that will follow us. Global water issues threaten the stability of world economies and the lives of millions, especially the young. They also serve as the roots of conflict among nations over these resources.

Let me review some of the water challenges we are facing today.

- The Nation faces periodic drought and has no drought plan. The recent congressional authorization of a National Drought Information System was a step in the right direction but a funding stream is now needed to ensure efforts to help forecast and monitor drought. It is important to remember that in 2002, 49 percent of the contiguous United States was in moderate to extreme drought.

- Annual flood losses in the United States continue to increase in spite of nearly 71 years of federal flood control and 39 years of National Flood Insurance. While these latter programs have prevented billions of dollars in damages, the pre-Katrina annual flood costs to the Nation are estimated to be in excess of $6 billion. The Katrina costs will drive this even higher.

- Demands for municipal and industrial water supplies are growing in many parts of the country and governments are struggling to deal with these demands. While average per-capita use is declining, the population is growing. By 2050 the U.S. population is expected to grow by almost half from its 2000 level, adding more than 137 million persons and a consequent increased water demand.

- Many ports, gateways to domestic and international trade and overseas military operations, are operating at the margin in terms of channel depths. The inland waterway system is congested and is in need of rehabilitation.

- Wetland losses on nonfederal lands are between 70,000 and 90,000 acres annually.

- More than 1300 plants and animals are listed as threatened or endangered. While the Endangered Species Act has prevented extinction for many, it has recovered few. Recovery plans exist for 976 species but are difficult and costly to implement and require many years to move to fruition.

- Multi-billion dollar ecosystem restoration projects in the Everglades, Coastal Louisiana, the Great Lakes and Chesapeake Bay, and on the Upper Mississippi River, are essential to the ecological health of those areas, but lack adequate or, in some cases, any funding.

- EPA's latest assessment of U.S. water quality – 2000 – indicates that of the 699,946 river and stream miles that were assessed by the states (or 19% of the nation's river and stream miles), 269,258 (39%) were not fully meeting water quality standards (i.e., at least one use was impaired). Of 31,072 assessed square miles (36% of the nation's estuarine square miles), 15,676, or 51%, were not fully meeting water quality standards. Emerging contaminants may threaten the viability of many of our current treatment approaches.

- The 2005 American Society of Civil Engineers Report Card for America's Infrastructure assigns a D grade to water infrastructure and cites an annual shortfall of $11 billion needed to replace facilities that are nearing the end of their useful life. Wastewater systems face a $12 billion annual shortfall in funding for their needs. States presently report more than 3,500 "unsafe" dams.

- Conflicts over the primacy of one water use over another, the water needs of natural systems, and the water rights of Native Americans, continue to occur. These differing viewpoints can be seen in the nearly 19 years of disagreement over management of the Missouri River and the nearly eight years that Alabama, Georgia and Florida have been working to allocate waters of the Apalachicola-Chattahoochee-Flint Rivers.

- At the international level, the starkest statistic indicates that 1.1 billion people lack access to improved water supply and 2.6 billion to improved sanitation.[2] Five million people, mostly children, die each year from lack of access to clean water.[3] Transboundary water disputes over the sharing of water offer potential for increased tensions among nations and are the roots of possible conflicts.

Climate change will have substantial impacts on water resource problems. In an April 2007 report, an Intergovernmental Panel on Climate Change (IPCC) Working Group reported that "by mid-century, annual average river runoff and water availability are projected to increase by 10-40% at high latitudes and in some wet tropical areas, and decrease by 10-30% over some dry regions at mid-latitudes and in the dry tropics, some of which are presently water stressed areas...Drought-affected areas will likely increase in extent. Heavy precipitation events, which are very likely to increase in frequency, will augment flood risk...In the course of the century, water supplies stored in glaciers and snow cover are projected to decline, reducing water availability in regions supplied by meltwater from major mountain ranges, where more than one-sixth of the world population currently lives...The resilience of many ecosystems is likely to be exceeded this century by an unprecedented combination of climate change, associated disturbances (e.g., flooding, drought, wildfire, insects, ocean acidification), and other global change."[4] Others indicate that sea level rise will increased the vulnerability of coastal infrastructure to flooding and storm surge, speed the loss of coastal wetlands and lead to salt water intrusion into coastal aquifers and upstream in coastal rivers. This is not a very bright picture.

On a subject familiar to this committee, the protection and restoration of areas affected by riverine and coastal flooding, climate change will make the work ahead even more difficult than it is now. It will add significantly to the engineering and social challenges faced in Louisiana and around the nation in reconstructing, maintaining, and upgrading dams, levees and other flood risk reduction structures. Those conducting congressionally directed studies of the protection and restoration of coastal Louisiana are not dealing with getting things back to where but with adapting future hurricane protection systems to the impacts of climate change. What you are facing in Louisiana is mirrored in highly populated areas throughout the nation.

As we move to face these challenges we are operating without a sound understanding of the specifics of our water issues. It has been 30 years since the last national water assessment took place and much has changed across the physical and social landscape. The Administration and Congress should address the urgent requirement for a national assessment of water resources needs. A comprehensive review of physical challenges as well as policy gaps, overlaps, and contradictions is long overdue.

On a higher level, water resources challenges that imperil our quality of life and economic security have been identified by numerous groups and government agencies over the last decade. Major policy implications were identified in three National Water Resources Policy Dialogues conducted by AWRA under the sponsorship of ten federal agencies and nearly 40 state, local, business, and nongovernmental organizations. The water resources experts participating in the Dialogues heard from members of the cabinet, Congress, tribes, state and local agencies, and nongovernmental organizations.

We reported the results of the Dialogues to the President, the Congress, and the governors in 2003, 2005 and earlier this year. The general conclusion of the Dialogues has been consistent — efforts to deal with water issues need focus and immediate attention and can no longer be pushed into the background. Our nation's approach to dealing with water is ad hoc. Numerous studies by the National Academies, other nonpartisan organizations, and both the Administration and the Congress speak to "management by earmark." We address problems as they appear or as they

merit political support rather than addressing long term needs. Tackling these problems in a rational manner will require that the nation – the Administration, the Congress, state, tribal, and local officials, and the public – develops a vision that provides a national versus federal perspective on water resources.

What needs to be done?

- The Administration and Congress should work with governors and tribal leaders to establish broad principles for water management – in essence, a national – not a federal - vision for use of our waters today and under these stark future conditions. In turn the vision must be translated into water policies that first clearly define the roles and responsibilities of federal, state and local governments and the public with respect to water and second, set out the goals and objectives that would establish a blueprint for future actions – how we are going to adapt to the results of climate change. I should note that there was a strong sense within the Dialogues that the center of gravity for national water actions should rest at the state level and be backed by appropriate support from the federal government.

- The Administration and Congress should better coordinate water resources activities. The efforts of federal agencies can overlap and at times conflict, and there is no body within the Administration to provide substantive coordination or adjudication of disagreements among agencies and to ensure needed collaboration. Furthermore, the Congress should work to eliminate the frequently uncoordinated actions of the numerous Congressional committees that deal with water.

- The Administration, Congress, and the governors must encourage policies that promote watershed planning and change policies that do not. Federal agency operations and programs need to be more watershed-oriented rather than tied to political boundaries and project-level authorizations and appropriations that often create more problems than they solve. Much should be learned from the successful efforts of some states and tribal organizations to operate in this manner.

- The Administration, Congress, and the governors must ensure that the Nation's vast scientific knowledge about water is available to all, clearly presented, and fully considered in making decisions on key water issues. Critical data about water resources must be collected and maintained, and research and development on critical water issues must be supported. Our need for accurate streamflow, groundwater and other water resource data continues to increase along with our population, economy, land uses and education, yet each year, we eliminate needed gages and other data collection infrastructure.

- With specific respect to climate change:

    - Congress should provide adequate funding to federal agencies to undertake climate change impact analyses for the planning of new projects and the operations of existing projects. These agencies already have the requisite authorities but lack the resources. Cost-shred planning is another impediment to exercising these authorities

are outdated benefit-cost analysis framework which effectively discount the long term-benefits of adapting to climate change.

- Congress should closely examine the allocation of funds for water resource infrastructure. Our current situation points to the failure of the current funding levels to adequately deal with the challenges we currently face. How can we expect to deal with climate change on top of these current problems without a substantial increase in resources devoted to dealing with water?

In summary, stewardship of the Nation's water resources is being neglected and the manner in which we deal with water issues and climate change is dysfunctional.

We urge you to initiate substantive efforts to develop a coordinated, collaborative, national (not federal) approach to preserving and protecting our water resources now. A failure to do so will threaten the health and welfare of our citizens, endanger the economy, weaken our national security, and pass our problems to our grandchildren/

Thank you.

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[1] Gerald E. Galloway is currently Glenn L. Martin Institute Professor of Engineering and an Affiliate Professor in the School of Public Policy, at the University of Maryland He is also a Visiting scholar at the US Army Institute for Water Resources and a consultant to several organizations. Previously, he served as secretary of the United States Section of the International Joint Commission in Washington, D.C.

He has been a consultant to the Executive Office of the President, and has assisted the U.S. Water Resources Council, World Bank, Organization of American States, Tennessee Valley Authority, U.S. Army Corps of Engineers and various other organizations in water resources related activities. He was appointed by President Reagan to the Mississippi River Commission and served on the Commission for seven years. Following the disastrous 1993 Mississippi Flood, he was assigned to the White House and led an interagency study that investigated the causes of that flood and made recommendations to improve the nation's floodplain management. He commanded the Army Corps of Engineers District in Vicksburg, Mississippi from 1974 to 1977 and has served on the faculty of the U.S. Military Academy at West Point. In 1990, he was promoted to Brigadier General and appointed the ninth Dean of the Academic Board (Chief Academic Officer) of the Military Academy. He retired from active duty after a 38 year military career.

Dr. Galloway holds master's degrees from Princeton, Penn State, and the U.S. Army Command and General Staff College. Dr. Galloway received his Ph.D. degree in geography from the University of North Carolina. Dr. Galloway is a member of the National Academy of Engineering, a fellow in the American Society of Civil Engineers and an Honorary Diplomate of the American Academy of Water Resources Engineers and a registered professional engineer in New York.

[2] World Health Organization. http://www.who.int/water_sanitation_health/mdg1/en/index.html

[3] Peter H. Gleick.. *Dirty Water: Estimated Deaths from Water-Related Diseases 2000-2020.* Pacific Institute Research Report.. August 15, 2002

[4] Intergovernmental Panel on Climate Change, Working Group II. *Climate Change 2007: Impacts, Adaptation and Vulnerability*. Contribution to the Fourth Assessment Report Summary for Policymakers.. Geneva: IPCC: April 2007.